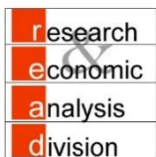


Top 20 Occupations in Hawaii



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Department of Business, Economic Development & Tourism
Research and Economic Analysis Division

This report was produced by the Research and Economic Analysis Division (READ) of the Department of Business, Economic Development & Tourism (DBEDT). It was prepared by Dr. Jie Bai, Economist, and Naomi Akamine, Economist, under the direction of Dr. Eugene Tian, the Economic Research Administrator.

Executive Summary

This report studies Hawaii's occupational structure changes over a 15-year period from 2001 to 2016. Top 20 largest occupations in Hawaii are identified, as well as fastest-growing, largest-growing, and highest-paying occupations. The demographic and economic characteristics of the top occupations are further examined. The report also identifies top 20 STEM occupations in Hawaii and compares STEM occupations with non-STEM occupations. This report covers only the civilian occupations which include civilians working in military bases; occupations of active duty military personnel are excluded in this study.

Following are some highlights from this report:

- In terms of number of jobs, Retail Sale Workers ranked the largest occupation in Hawaii with 42,445 workers in 2016, followed by Food and Beverage Serving Workers at 40,775, and Construction Trade Workers at 34,137.
- By percentage growth, the fastest growing occupations between 2001 and 2016 are those in health care and construction industries. Nursing, Psychiatric, and Home Health Aids workers increased 71.4 percent between 2001 and 2016, Construction Trade Workers increased 53.2 percent, and Occupational Therapy and Physical Therapist Assistants increased 50.9 percent during the same period.
- By number of workers, Construction Trades Workers increased the most by 11,860 between 2001 and 2016, followed by Food and Beverage Serving Workers with additional 7,446, and Cooks and Food Preparation Workers at 4,990 additional.
- The highest-paying occupation in Hawaii in 2017 was Health Diagnosing and Treating Practitioners with median hourly earnings of \$46.11, followed by Top Executives at \$45.31, and Lawyers, Judges, and Related Workers at \$42.06.
- Among the top 20 occupations, Asians were the largest racial group in all the categories except Top Executives where White had the largest proportion.
- Male-dominated occupations included Construction Trades Workers with 98.5 percent of male workers, Other Installation, Maintenance and Repair Workers (95.7 percent) and Motor Vehicle Operators (87.9 percent). On the contrary, Secretaries and Administrative Assistants had 92.8 percent of female workers, followed by Financial Clerks (84.4 percent) and Other Office and Administrative Support (77.7 percent).
- Food service related occupations, including Food and Beverage Serving Workers and Other Food Preparation and Serving Related Workers, had the largest share of Millennials at 61.9 percent and 54.7 percent, respectively. Generation X accounted for more than 40 percent of total workers in Health Diagnosing and Treating Practitioners (40.1 percent), Preschool, Primary, Secondary and Special Education School Teachers (40.0 percent), and Business Operations Specialists (39.9 percent). Top Executives and Building Cleaning and Pest Control Workers comprised more senior workers, those born before 1965, at 49.1 percent and 44.7 percent, respectively.

- Among the top 20 occupation groups, majority of the Food and Beverage Serving Workers (98.9 percent), Retail Sales Workers (94.1 percent), and Cooks and Food Preparation Workers (93.7 percent) worked in private sectors. 71.2 percent of the Preschool, Primary, Secondary and Special Education Teachers were government employees.
- Compared with other top 20 occupations, Top Executives were the most likely to work full-time, with 93.4 percent, followed by Other Installation, Maintenance and Repair Workers at 91.2 percent. 62.0 percent of Other Food Preparation and Serving Related Workers, for instance, Dishwashers and Dining Room Attendants, were part-time workers.
- Among the top 20 occupations, 69.6 percent of Material Moving Workers and 66.8 percent of Building Cleaning and Pest Control Workers had high school diploma or below. On the contrary, 87.7 percent of Preschool, Primary, Secondary and Special Education Teachers and 82.7 percent of Health Diagnosing and Treating Practitioners had bachelor's degree or higher.
- In 2016, there were 29,438 STEM occupations in Hawaii, representing 4.1 percent of total employment.
- Civil Engineers topped the list of STEM occupation with 2,227 jobs in 2016, accounting for 0.31 percent of total civilian jobs. Eight computer-related occupations, appeared in the top 20 list, made up nearly 31.5 percent of STEM employment.
- Among the top 20 STEM occupations, Electrical Engineers were the fastest-growing occupations, with an annual growth rate of 2.25 percent over the period of 2001-2016, followed by Biological Technicians at 2.0 percent.
- Three fourth of STEM occupations were male workers, though the ratio was 50-50 among the non-STEM occupations.
- STEM job holders tend to be younger, with 73.6 percent were born after 1964, compared with 68.7 percent in non-STEM jobs. The Generation X made up 38.2 percent of STEM jobs, 4.8 percentage points higher than in non-STEM jobs.
- Not surprisingly, majority of STEM jobs had bachelor's degree or above. The ratio of bachelor's degree or higher degree holders in the STEM jobs was more than double the ratio in the non-STEM jobs. Only 6.6 percent of STEM jobs had high school diploma or below, compared with one third of non-STEM jobs.

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Top 20 Occupations in Hawaii

Introduction

This report studies Hawaii's occupational structure changes over a 15-year period from 2001 to 2016. To do so, it first identifies the top 20 largest occupations in Hawaii and examines how they changed over time and how they differ from the nation. Fastest-growing and largest-growing occupations are also identified to show the occupations with the most potential. Secondly, a close look is taken at the top occupations by examining their demographic and economic characteristics. Thirdly, it focuses on the STEM occupations and compares their characteristics with non-STEM occupations.

Occupations are defined according to the Bureau of Labor Statistics (BLS)'s Standard Occupational Classification (SOC) system. All workers are classified into one of 840 detailed occupations (SOC 5-digit)¹. To facilitate classification, detailed occupations are combined to form 461 broad occupations (4-digit), 97 minor groups (3-digit), and 23 major groups (2-digit). In this analysis, the top occupations are selected from the minor groups, so that the top 20 largest occupations cover up to 60 percent of all occupations. STEM occupations, however, are from the detailed category, because they are defined at the 5-digit level.

This report covers only the civilian occupations which include civilians working in military bases; occupations of active duty military personnel are excluded in this study. The employment and wage data are from Economic Modeling Services, Inc. (EMSI), which compiles data from BLS, Bureau of Economic Analysis (BEA), Census Bureau's American Community Survey (ACS), as well as Hawaii Department of Labor and Industrial Relations (DLIR). Jobs include BLS' Quarterly Census of Employment and Wages (QCEW) employees, non-QCEW employees, and self-employed². The demographic and economic characteristics of occupations are tabulated from the Census Bureau's ACS 2012-2016 5-year PUMS data.

¹ Here the number of occupations in each group is based on the 2010 version of the SOC coding system.

² Extended proprietors, those with miscellaneous labor income from secondary jobs, are excluded.

Ranking of the Top 20 Occupations in Hawaii

In 2016, there were about 716,000 civilian jobs in Hawaii, 15.9 percent more than fifteen years ago in 2001. Hawaii's job growth was faster than the nation at 9.7 percent over this time period. These jobs are grouped into 97 minor occupation groups at the 3-digit SOC level. The top 20 largest occupations accounted for 60 percent of total civilian jobs. Retail Sales Workers topped the list with 42,445 jobs in 2016, or 5.9 percent of total civilian jobs, followed by Food and Beverage Serving Workers (40,775 or 5.7 percent) and Construction Trades Workers (34,137 or 4.8 percent).

Compared with the nation, four out of the top five occupations are the same. Construction Trades Workers, however, had a significantly higher share in Hawaii, that is 1.3 percentage point higher than the nation. Furthermore, against the slightly decreasing national trend of Construction Trade Workers in the past fifteen years, Hawaii's Construction Trades Workers grew strongly at the average annual rate of 2.9 percent.

Reflecting the climate and tourism industry in Hawaii, Building Cleaning and Pest Control Workers took a much higher share than the nation, that is 1.5 percentage point higher. In addition, the Food Preparation and Serving Related Occupations on the top 20 list, which include Food and Beverage Serving Workers (35-3000), Cooks and Food Preparation Workers (35-2000), and Other Food Preparation and Serving Related Workers (35-9000), altogether accounted for 10.6 percent of total Hawaii jobs, 2.8 percentage point higher than their counterparts in the nation.

Industry distributions of the top 20 largest occupations

Table 2 shows how the top 20 largest occupations were distributed among the 20 industry groups in Hawaii. When examining the relationship between occupations and industry sectors, the following patterns emerge. First, the Accommodation and Food Service sector (NAICS 72) generated the largest share of the top 20 occupations, followed by Public Administration sector (NAICS 90) and Retail Trade sector (NAICS 44). Second, most Retail Sales Worker positions were created in the Retail Trade industry (NAICS 44), same as the Construction Trade Workers in the Construction industry (NAICS 23) and Food Preparation and Serving Related Workers in the Accommodation and Food Service sector (NAICS 72).

Table 1. Top 20 largest occupations in Hawaii, 2016 v.s. 2001

Occupations		Jobs in Hawaii				Job growth in Hawaii: 2001-2016			U.S.	
		2016		2001		Added jobs	15-year Growth rate (%)	Ave. ann. Growth rate (%)	% of Total	15-year Growth rate (%)
		Jobs	% of Total	Jobs	% of Total					
1	Retail Sales Workers (41-2000)	42,445	5.9	40,405	6.5	2,040	5.0	0.3	5.7	3.6
2	Food and Beverage Serving Workers (35-3000)	40,775	5.7	33,329	5.4	7,446	22.3	1.4	4.8	31.9
3	Construction Trades Workers (47-2000)	34,137	4.8	22,276	3.6	11,860	53.2	2.9	3.5	-0.4
4	Building Cleaning and Pest Control Workers (37-2000)	30,277	4.2	25,576	4.1	4,701	18.4	1.1	2.7	16.3
5	Information and Record Clerks (43-4000)	24,476	3.4	22,934	3.7	1,542	6.7	0.4	3.8	9.4
6	Cooks and Food Preparation Workers (35-2000)	22,481	3.1	17,491	2.8	4,990	28.5	1.7	2.1	28.1
7	Health Diagnosing and Treating Practitioners (29-1000)	22,014	3.1	17,450	2.8	4,564	26.2	1.6	3.5	28.4
8	Other Management Occupations (11-9000)	20,260	2.8	17,346	2.8	2,914	16.8	1.0	2.3	8.3
9	Other Office and Administrative Support Workers (43-9000)	19,981	2.8	18,145	2.9	1,836	10.1	0.6	2.9	7.1
10	Business Operations Specialists (13-1000)	19,971	2.8	17,370	2.8	2,601	15.0	0.9	3.2	12.3
11	Motor Vehicle Operators (53-3000)	17,949	2.5	14,939	2.4	3,010	20.2	1.2	2.8	10.8
12	Secretaries and Administrative Assistants (43-6000)	17,275	2.4	15,579	2.5	1,696	10.9	0.7	2.7	10.2
13	Preschool, Primary, Secondary, and Special Education School Teachers (25-2000)	17,183	2.4	14,780	2.4	2,402	16.3	1.0	2.7	10.2
14	Material Recording, Scheduling, Dispatching, and Distributing Workers (43-5000)	16,495	2.3	15,280	2.5	1,215	8.0	0.5	2.7	-2.0
15	Other Personal Care and Service Workers (39-9000)	15,603	2.2	11,924	1.9	3,680	30.9	1.8	2.7	44.7
16	Material Moving Workers (53-7000)	14,642	2.0	13,169	2.1	1,473	11.2	0.7	3.0	6.0
17	Other Installation, Maintenance, and Repair Occupations (49-9000)	13,950	1.9	12,204	2.0	1,746	14.3	0.9	2.0	4.2
18	Top Executives (11-1000)	13,393	1.9	11,413	1.8	1,980	17.4	1.1	1.7	6.8
19	Financial Clerks (43-3000)	13,327	1.9	13,268	2.1	59	0.4	0.0	2.2	1.0
20	Other Food Preparation and Serving Related Workers (35-9000)	13,229	1.8	10,167	1.6	3,062	30.1	1.8	0.9	28.8
Total Civilian Jobs		716,128	100	617,732	100	98,396	15.9	1.0	100	9.7

Source: EMSI, calculated by DBEDT.

Table 2. Top 20 occupations by industry at 2-digit NAICS in Hawaii: 2016

Occupations	NAICS11	NAICS21	NAICS22	NAICS23	NAICS31	NAICS42	NAICS44	NAICS48	NAICS51	NAICS52
	Agr.	Mining	Utilities	Cons.	Manuf.	W. Trade	R. Trade	Trans.	Info.	Finance
Total	9,111	232	3,777	45,860	15,644	18,846	73,591	30,164	10,311	16,755
Retail Sales Workers	35	0	<10	35	448	403	34,715	143	165	51
Food and Beverage Serving Workers	<10	0	0	<10	301	18	1,078	164	300	0
Construction Trades Workers	50	58	229	28,413	482	76	237	52	64	<10
Building Cleaning and Pest Control Workers	61	<10	<10	114	179	90	466	107	28	31
Information and Record Clerks	39	<10	148	181	229	751	1,535	2,367	590	2,422
Cooks and Food Preparation Workers	17	0	0	<10	221	37	1,655	182	14	<10
Health Diagnosing and Treating Practitioners	<10	0	0	0	<10	31	1,040	<10	<10	198
Other Management Occupations	2,130	<10	104	2,941	323	64	63	128	181	178
Other Office and Administrative Support Workers	54	<10	80	925	237	621	813	487	377	1,170
Business Operations Specialists	35	<10	194	1,179	269	681	521	281	381	1,099
Motor Vehicle Operators	224	16	<10	330	560	2,150	1,488	7,531	80	<10
Secretaries and Administrative Assistants	76	<10	97	865	161	416	355	276	171	543
Preschool, Primary, Secondary, and Special Education School Teachers	0	0	0	0	0	0	<10	0	<10	0
Material Recording, Scheduling, Dispatching, and Distributing Workers	63	11	128	183	541	1,554	6,912	1,670	139	42
Other Personal Care and Service Workers	<10	0	0	<10	0	0	14	39	<10	<10
Material Moving Workers	259	33	62	365	1,315	1,872	2,249	2,692	113	<10
Other Installation, Maintenance, and Repair Occupations	91	13	539	1,693	673	475	514	358	288	21
Top Executives	58	<10	131	929	422	798	1,325	462	257	508
Financial Clerks	85	<10	61	631	185	524	782	298	152	2,565
Other Food Preparation and Serving Related Workers	<10	0	0	<10	37	<10	68	73	<10	0

Table 2. Top 20 occupations by industry at 2-digit NAICS in Hawaii: 2016 (Cont.)

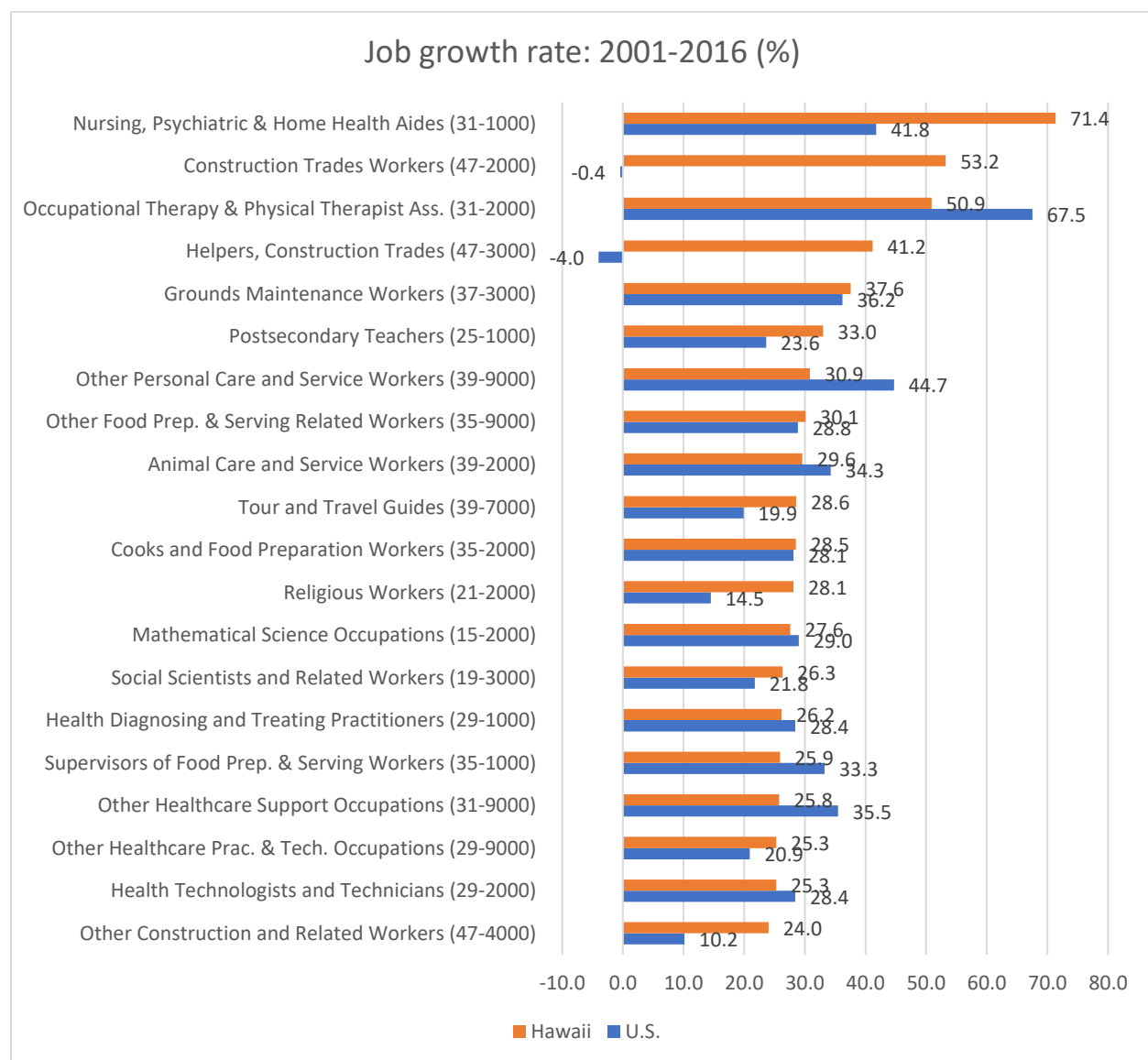
Occupations	NAICS53	NAICS54	NAICS55	NAICS56	NAICS61	NAICS62	NAICS71	NAICS72	NAICS81	NAICS90
	Real Estate	Prof., Sci. & Tech.	Mgmt .	Admin.	Edu.	Health Care	Arts & Ent.	Accom. & Food Ser.	Other	Pub. Adm.
Total	16,086	30,421	8,707	56,148	20,669	74,016	14,834	107,742	33,891	129,145
Retail Sales Workers	1,317	64	44	570	52	165	669	2,431	649	466
Food and Beverage Serving	45	12	12	550	133	769	998	35,417	277	683
Construction Trades Workers	165	91	33	1,810	41	59	64	102	61	2,042
Building Cleaning and Pest Control Workers	567	72	40	9,176	571	1,394	318	11,647	1,837	3,567
Information and Record Clerks	441	946	580	2,818	552	2,553	277	2,926	923	4,190
Cooks and Food Preparation Workers	21	<10	10	310	142	957	374	17,294	187	1,050
Health Diagnosing and Treating Practitioners	17	271	72	533	161	14,462	11	26	75	5,104
Other Management Occupations	2,419	932	416	385	628	1,889	247	2,827	676	3,724
Other Office and Administrative Support Workers	600	1,127	345	1,989	914	1,697	189	399	1,104	6,842
Business Operations Specialists	179	1,968	938	1,610	336	738	250	381	1,583	7,340
Motor Vehicle Operators	646	45	75	1,059	90	367	44	1,353	381	1,495
Secretaries and Administrative Assistants	630	1,660	395	1,376	1,114	2,593	191	322	1,505	4,521
Preschool, Primary, Secondary, and Special Education School Teachers	0	<10	<10	36	4,530	1,362	<10	<10	328	10,907
Material Recording, Scheduling, Dispatching, and Distributing Workers	91	208	166	988	58	406	29	167	105	3,031
Other Personal Care and Service Workers	44	<10	26	424	511	8,173	1,391	379	2,162	2,408
Material Moving Workers	535	101	69	3,335	15	137	113	110	534	727
Other Installation, Maintenance, and Repair Occupations	1,438	118	110	947	235	388	349	2,069	1,149	2,479
Top Executives	425	1,017	568	1,149	241	741	373	1,092	1,089	1,795
Financial Clerks	395	1,171	609	1,146	284	1,376	119	681	576	1,677
Other Food Preparation and Serving Related Workers	14	<10	<10	188	44	136	285	12,113	73	181

Source: EMSI.

Top 20 fastest-growing occupations

Nursing, Psychiatric, and Home Health Aides topped the list of the fastest-growing occupation in Hawaii with the growth rate of 71.4 percent over a 15-year period from 2001 to 2016. This growth rate is exceptional, compared with the nation at 41.8 percent. Two construction-related occupations, Construction Trades Workers and Helpers in Construction Trades, posted high growth rate at 53.2 percent and 41.2 percent respectively, despite the negative nationwide growth. Occupational Therapy and Physical Therapist Assistants and Aides grew at 50.9 percent, falling short of the national growth rate of 67.5 percent.

Figure 1. Top 20 fastest-growing occupations in Hawaii: 2001-2016

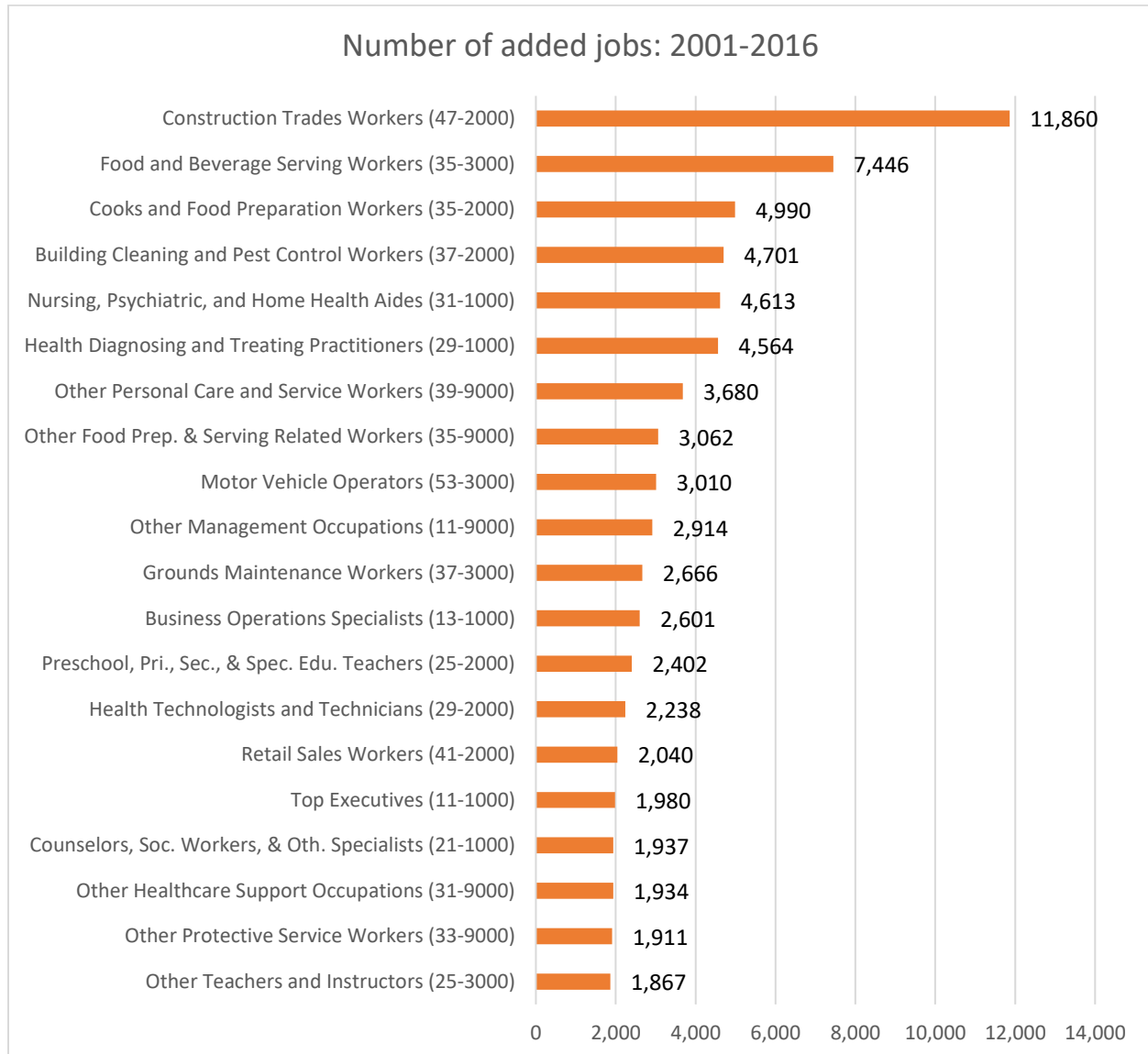


Source: EMSI, calculated by DBEDT.

Top 20 largest-growing occupations

By looking at the numeric change in jobs, the occupations which added most jobs to the economy can be identified over the period of 2001-2016. Construction Trades Workers gained the most jobs by 11,860. Food and Beverage Serving Workers, together with Cooks and Food Preparation Workers, increased by 12,436.

Figure 2. Top 20 largest-growing occupations in Hawaii: 2001-2016

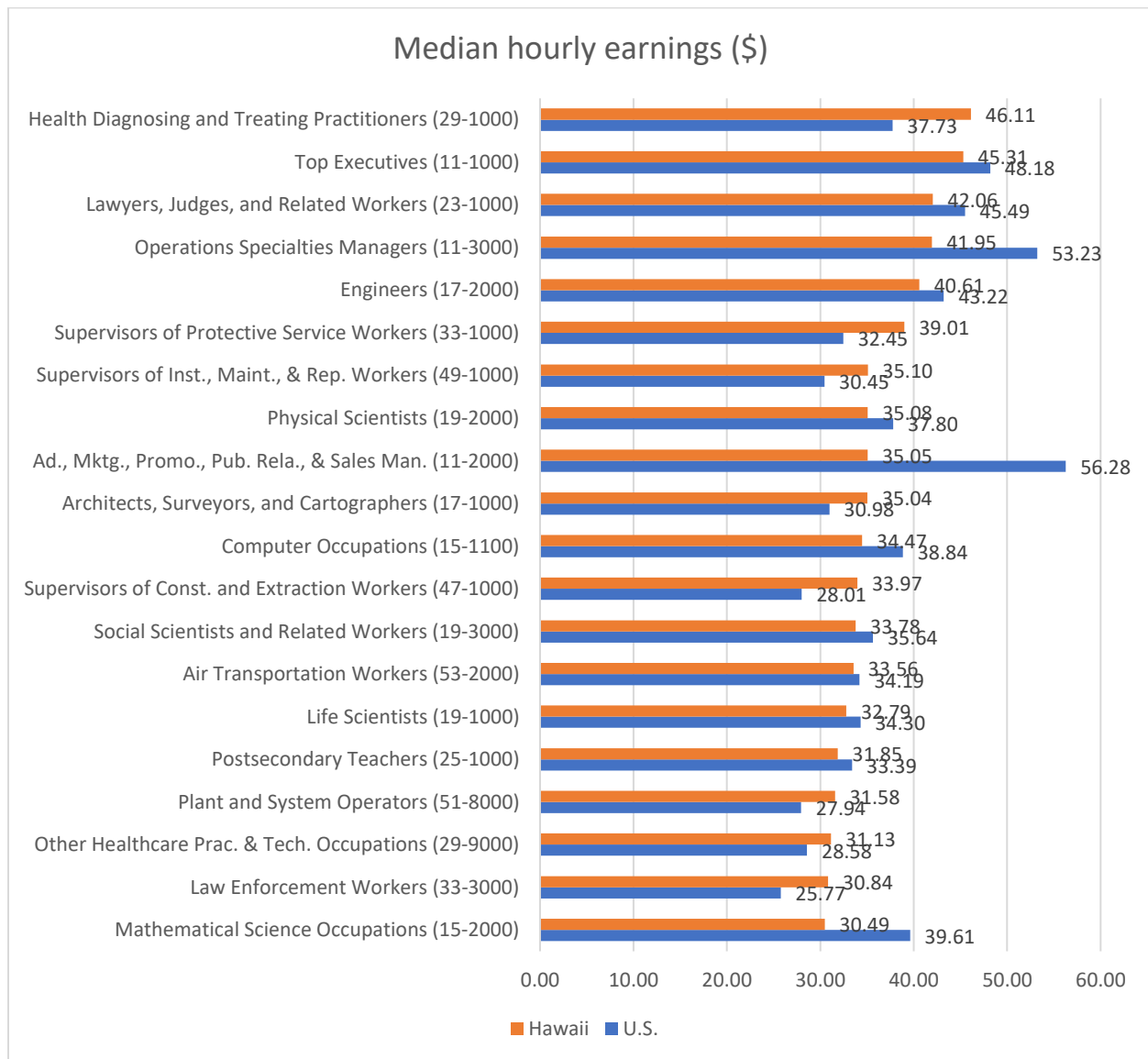


Source: EMSI, calculated by DBEDT.

Top 20 highest-paying occupations

Health Diagnosing and Treating Practitioners received the highest pay in Hawaii in 2017. Their median hourly earnings were \$46.11, well above the national level at \$37.73. Followed were Top Executives at \$45.31 and Lawyers, Judges, and Related Workers at \$42.06. The national highest-paying occupation was Advertising, Marketing, Promotions, Public Relations, and Sales Managers, with median hourly earnings of \$56.28, which was much higher than \$35.05 in Hawaii.

Figure 3. Top 20 highest-paying occupations in Hawaii: 2017



Source: EMSI, calculated by DBEDT.

Top 20 Occupations' Demographic and Economic Characteristics

Nearly each of the top 20 largest occupations can be individually identified in the 2012-2016 American Community Survey (ACS) 5-year PUMS data³, enabling a detailed analysis of demographic and economic characteristics of top occupations in Hawaii. During the 2012-2016 period, the Census Bureau surveyed a total of 48,457 households in Hawaii, covering about 9.2 percent of Hawaii's population between this 5-year period.

Race

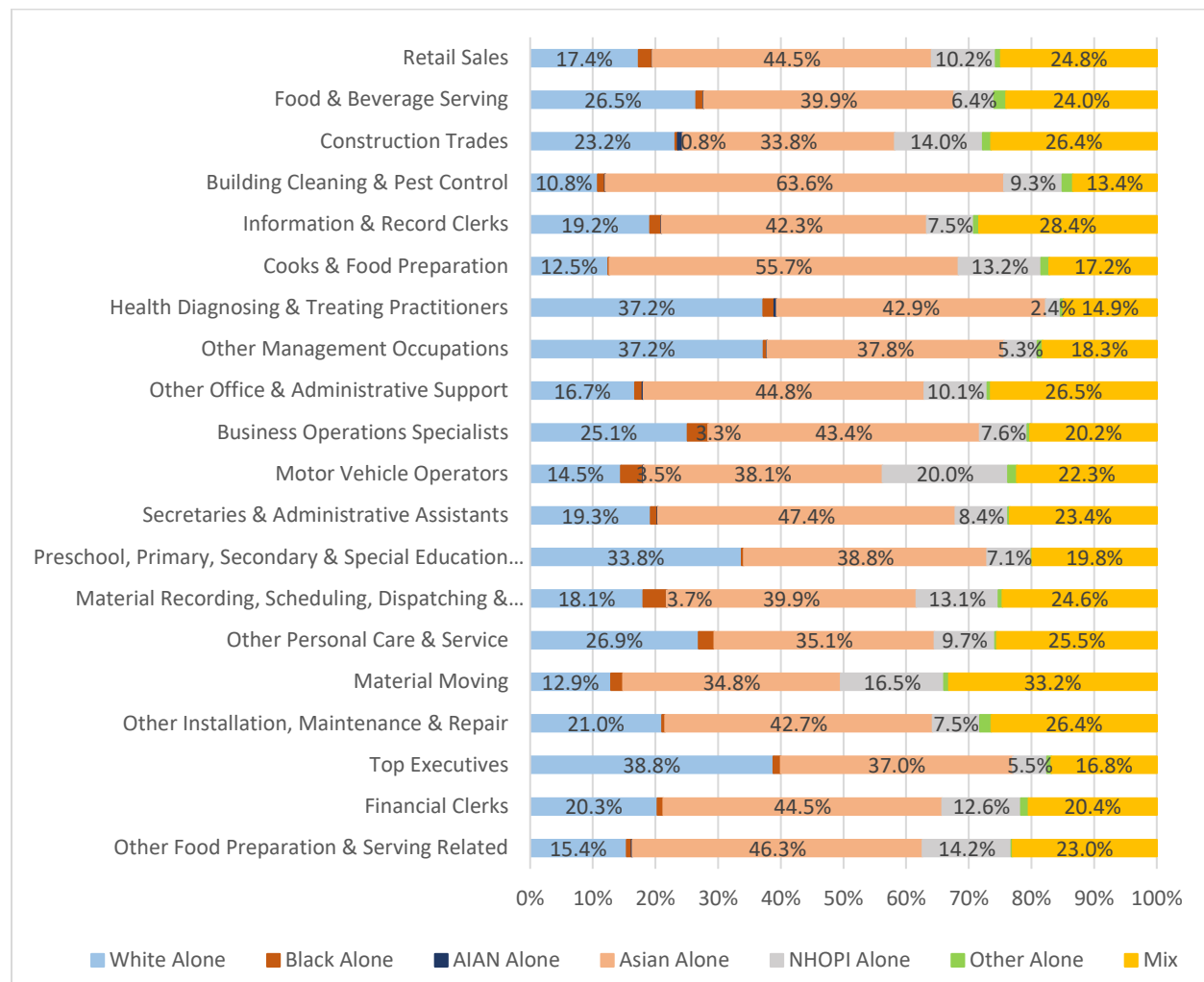
Table 3. Top 20 occupations by race in Hawaii (%): 2012-2016

Occupations	White Alone	Black Alone	AIAN Alone	Asian Alone	NHOPI Alone	Other Alone	Mix	Total
Retail Sales	17.4	2.1	0.1	44.5	10.2	0.8	24.8	100.0
Food & Beverage Serving	26.5	1.2	0.0	39.9	6.4	1.9	24.0	100.0
Construction Trades	23.2	0.4	0.8	33.8	14.0	1.3	26.4	100.0
Building Cleaning & Pest Control	10.8	1.1	0.1	63.6	9.3	1.7	13.4	100.0
Information & Record Clerks	19.2	1.8	0.0	42.3	7.5	0.8	28.4	100.0
Cooks & Food Preparation	12.5	0.2	0.0	55.7	13.2	1.3	17.2	100.0
Health Diagnosing & Treating Practitioners	37.2	1.8	0.4	42.9	2.4	0.5	14.9	100.0
Other Management Occupations	37.2	0.6	0.1	37.8	5.3	0.8	18.3	100.0
Other Office & Administrative Support	16.7	1.2	0.2	44.8	10.1	0.5	26.5	100.0
Business Operations Specialists	25.1	3.3	0.0	43.4	7.6	0.5	20.2	100.0
Motor Vehicle Operators	14.5	3.5	0.1	38.1	20.0	1.4	22.3	100.0
Secretaries & Administrative Assistants	19.3	1.1	0.1	47.4	8.4	0.3	23.4	100.0
Preschool, Primary, Secondary & Special Education School Teachers	33.8	0.4	0.0	38.8	7.1	0.2	19.8	100.0
Material Recording, Scheduling, Dispatching & Distributing	18.1	3.7	0.0	39.9	13.1	0.7	24.6	100.0
Other Personal Care & Service	26.9	2.5	0.0	35.1	9.7	0.3	25.5	100.0
Material Moving	12.9	1.9	0.0	34.8	16.5	0.8	33.2	100.0
Other Installation, Maintenance & Repair	21.0	0.5	0.0	42.7	7.5	1.8	26.4	100.0
Top Executives	38.8	1.2	0.0	37.0	5.5	0.7	16.8	100.0
Financial Clerks	20.3	0.9	0.0	44.5	12.6	1.2	20.4	100.0
Other Food Preparation & Serving Related	15.4	0.8	0.2	46.3	14.2	0.2	23.0	100.0

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

³ The only one exception is construction trades workers (47-2000). A small group of solar photovoltaic installers (47-2231) were excluded from the minor group 47-2000 in the PUMS data. There were 150 solar photovoltaic installers in the EMSI data, accounting for 0.4 percent of construction trades workers; thus their exclusion is unlikely to materially affect the results.

Figure 4. Top 20 occupations by race in Hawaii: 2012-2016



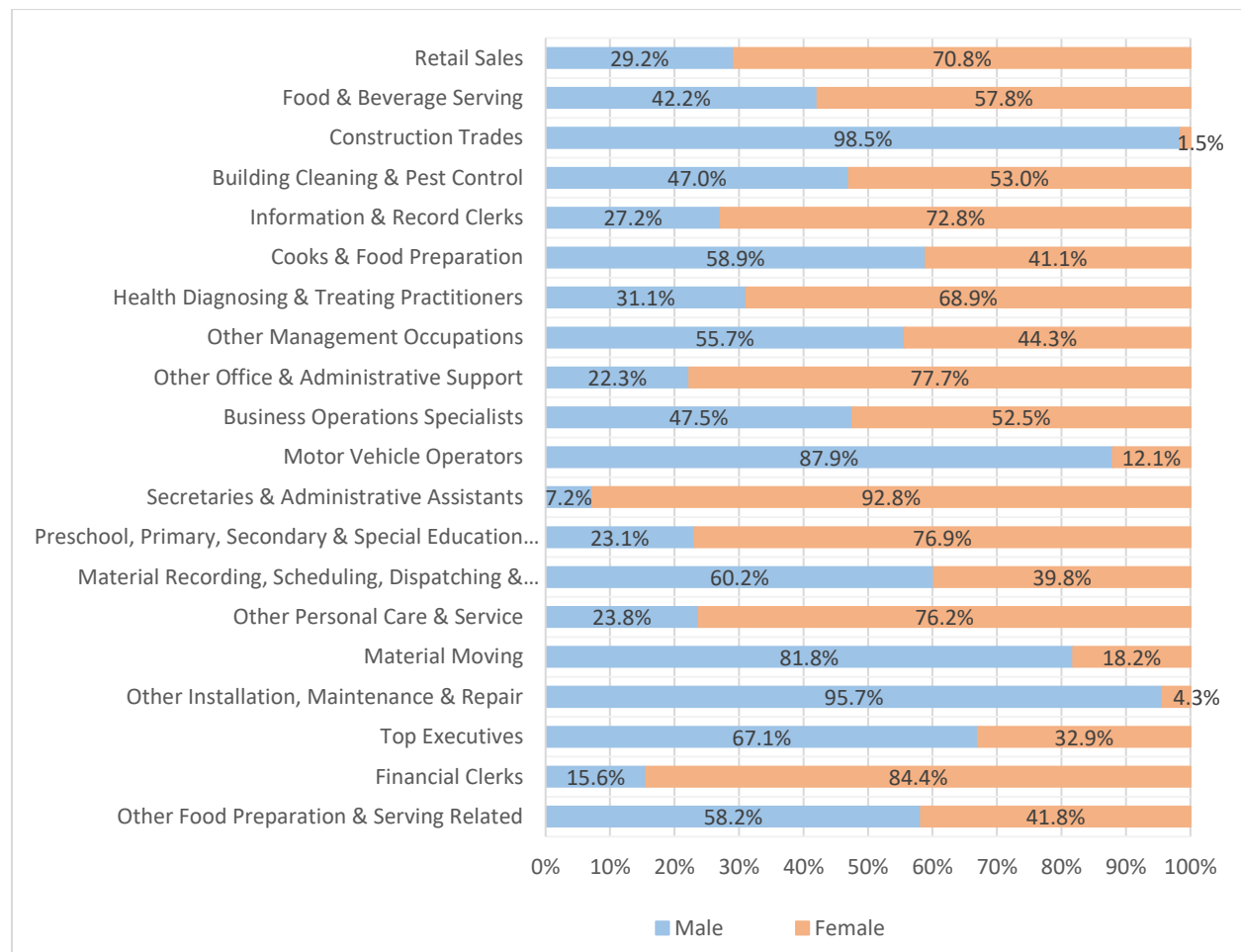
Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Among the top 20 largest occupations, Building Cleaning and Pest Control Workers had the largest proportion of Asians (63.6 percent), followed by Cooks and Food Preparation (55.7 percent) and Secretaries and Administrative Assistants (47.4 percent). Top Executives had the highest percentage of Whites (38.8 percent), followed by Health Diagnosing and Treating Practitioners and Other Management Occupations, both at 37.2 percent. Motor Vehicle Operators had the largest share of Native Hawaiian and other Pacific Islanders (20.0 percent). Material Recording, Scheduling, Dispatching and Distributing Workers had the highest percentage of Black Americans (3.7 percent). Construction Trades Workers had the largest percentage of American Indian or Alaska Native (0.8 percent).

Gender

Gender distributions were rather distinctive among the top 20 occupations. Male-dominated occupations included Construction Trades Workers with 98.5 percent of male workers, Other Installation, Maintenance and Repair Workers (95.7 percent) and Motor Vehicle Operators (87.9 percent). On the contrary, Secretaries and Administrative Assistants had 92.8 percent of female workers, followed by Financial Clerks (84.4 percent) and Other Office and Administrative Support (77.7 percent).

Figure 5. Top 20 occupations by gender in Hawaii: 2012-2016



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Age

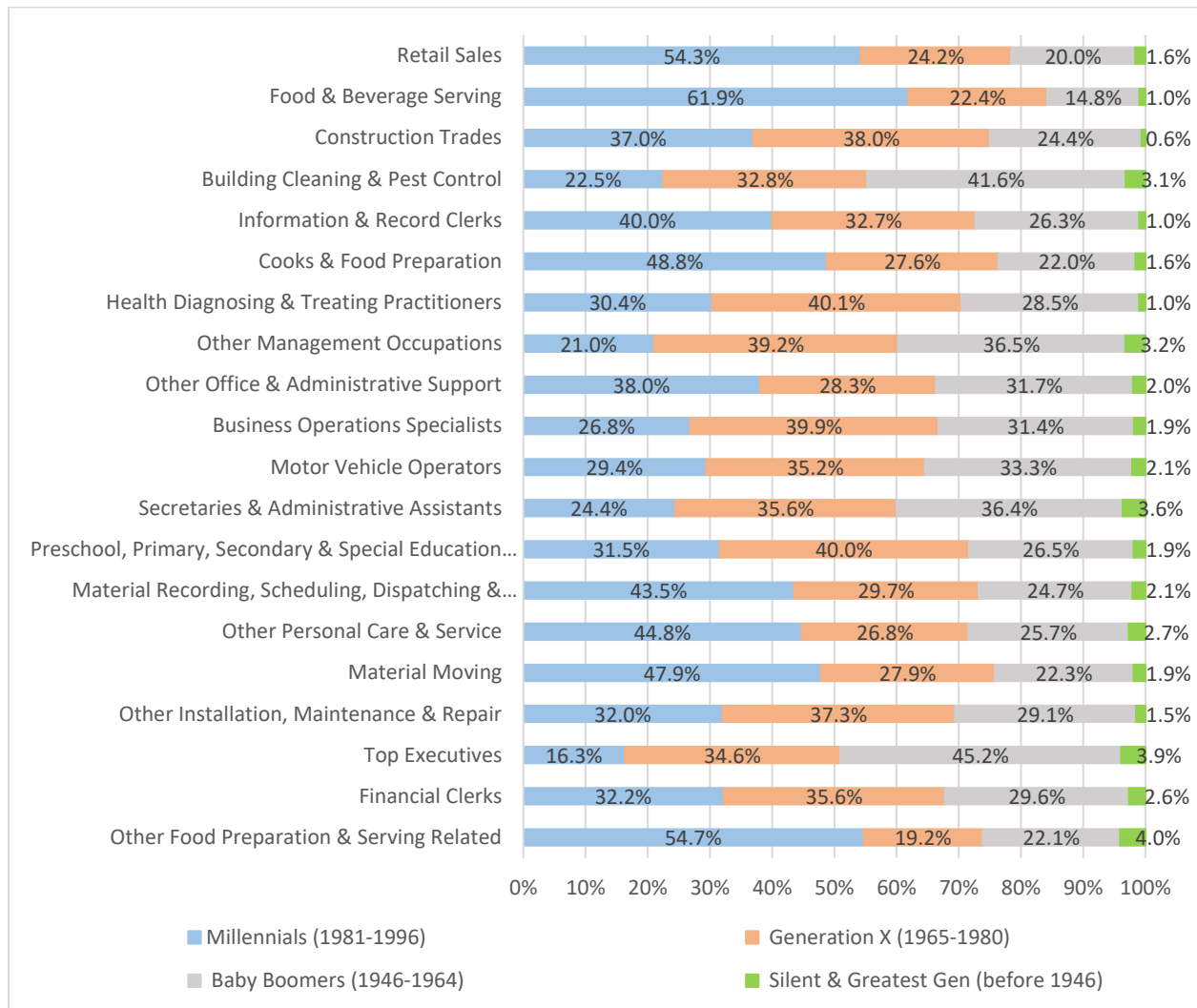
The working populations are divided into four major groups in this analysis: Millennials (born between 1981 and 1996), Generation X (born between 1965 and 1980), Baby Boomers (between 1946 and 1964), and silent & Greatest Generation (born before 1946). Food Service Related Occupations, including Food and Beverage Serving Workers and Other Food Preparation and Serving Related Workers, had the largest share of Millennials, 61.9 percent and 54.7 percent respectively. Followed were Retail Sales Workers at 54.3 percent. Three groups of occupations had about 40 percent of Generation X, Health Diagnosing and Treating Practitioners (40.1 percent), Preschool, Primary, Secondary and Special Education School Teachers (40.0 percent), and Business Operations Specialists (39.9 percent). Two contrasting groups of occupations had the largest shares of older generations, those born before 1965. One is Top Executives, 49.1 percent; the other is Building Cleaning and Pest Control Workers, 44.7 percent.

Table 4. Top 20 occupations by age group in Hawaii (%): 2012-2016

Occupations	Millennials (1981-1996)	Generation X (1965-1980)	Baby Boomers (1946-1964)	Silent & Greatest Gen (before 1946)	Total
Retail Sales	54.3	24.2	20.0	1.6	100.0
Food & Beverage Serving	61.9	22.4	14.8	1.0	100.0
Construction Trades	37.0	38.0	24.4	0.6	100.0
Building Cleaning & Pest Control	22.5	32.8	41.6	3.1	100.0
Information & Record Clerks	40.0	32.7	26.3	1.0	100.0
Cooks & Food Preparation	48.8	27.6	22.0	1.6	100.0
Health Diagnosing & Treating Practitioners	30.4	40.1	28.5	1.0	100.0
Other Management Occupations	21.0	39.2	36.5	3.2	100.0
Other Office & Administrative Support	38.0	28.3	31.7	2.0	100.0
Business Operations Specialists	26.8	39.9	31.4	1.9	100.0
Motor Vehicle Operators	29.4	35.2	33.3	2.1	100.0
Secretaries & Administrative Assistants	24.4	35.6	36.4	3.6	100.0
Preschool, Primary, Secondary & Special Education School Teachers	31.5	40.0	26.5	1.9	100.0
Material Recording, Scheduling, Dispatching & Distributing	43.5	29.7	24.7	2.1	100.0
Other Personal Care & Service	44.8	26.8	25.7	2.7	100.0
Material Moving	47.9	27.9	22.3	1.9	100.0
Other Installation, Maintenance & Repair	32.0	37.3	29.1	1.5	100.0
Top Executives	16.3	34.6	45.2	3.9	100.0
Financial Clerks	32.2	35.6	29.6	2.6	100.0
Other Food Preparation & Serving Related	54.7	19.2	22.1	4.0	100.0

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Figure 6. Top 20 occupations by age group in Hawaii: 2012-2016



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Class of workers

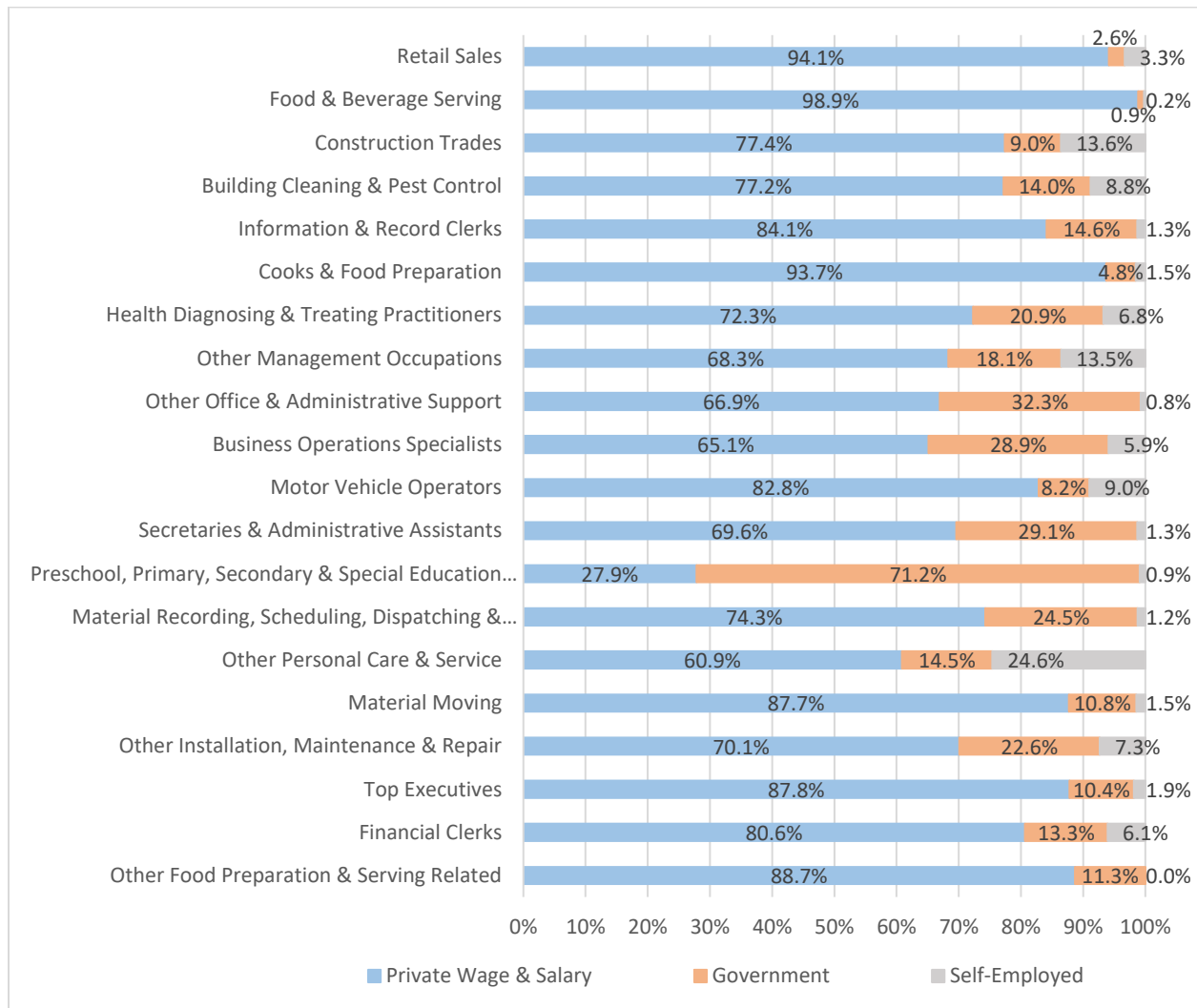
Among the top 20 occupation groups, three had over 90 percent of private wage and salary workers. They were Food and Beverage Serving Workers, with 98.9 percent employed in the private sector, Retail Sales Workers with 94.1 percent, and Cooks and Food Preparation Workers with 93.7 percent. 71.2 percent of Preschool, Primary, Secondary and Special Education Teachers were government employees, much higher than other occupations. Other Personal Care and Service Workers, for instance, Childcare Workers and Personal Care Aides, had the highest rates of self-employed workers, at 24.6 percent.

Table 5. Top 20 occupations by class of work in Hawaii (%): 2012-2016

Occupations	Private Wage & Salary	Government	Self-Employed	Total
Retail Sales	94.1	2.6	3.3	100.0
Food & Beverage Serving	98.9	0.9	0.2	100.0
Construction Trades	77.4	9.0	13.6	100.0
Building Cleaning & Pest Control	77.2	14.0	8.8	100.0
Information & Record Clerks	84.1	14.6	1.3	100.0
Cooks & Food Preparation	93.7	4.8	1.5	100.0
Health Diagnosing & Treating Practitioners	72.3	20.9	6.8	100.0
Other Management Occupations	68.3	18.1	13.5	100.0
Other Office & Administrative Support	66.9	32.3	0.8	100.0
Business Operations Specialists	65.1	28.9	5.9	100.0
Motor Vehicle Operators	82.8	8.2	9.0	100.0
Secretaries & Administrative Assistants	69.6	29.1	1.3	100.0
Preschool, Primary, Secondary & Special Education School Teachers	27.9	71.2	0.9	100.0
Material Recording, Scheduling, Dispatching & Distributing	74.3	24.5	1.2	100.0
Other Personal Care & Service	60.9	14.5	24.6	100.0
Material Moving	87.7	10.8	1.5	100.0
Other Installation, Maintenance & Repair	70.1	22.6	7.3	100.0
Top Executives	87.8	10.4	1.9	100.0
Financial Clerks	80.6	13.3	6.1	100.0
Other Food Preparation & Serving Related	88.7	11.3	0.0	100.0

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Figure 7. Top 20 occupations by class of work in Hawaii: 2012-2016

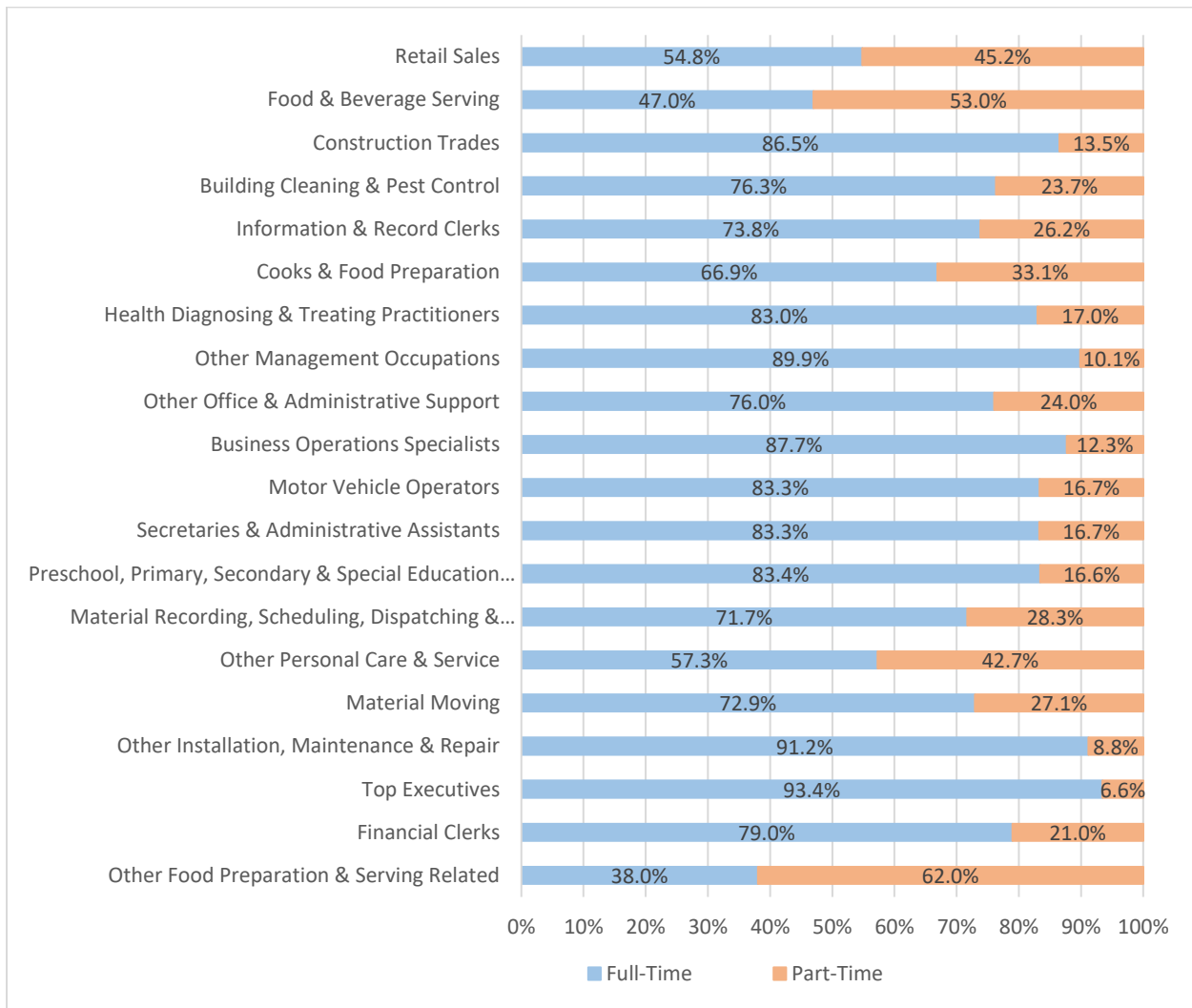


Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Full-time/Part-time

Compared with other occupations on the top 20 list, Top Executives were the most likely to work full-time, with 93.4 percent. Followed were Other Installation, Maintenance and Repair Workers, at 91.2 percent. 62.0 percent of Other Food Preparation and Serving Related Workers, for instance, Dishwashers and Dining Room Attendants, were part-time workers. Food and Beverage Serving Workers also had a high rate of part-time workers, at 53.0 percent.

Figure 8. Top 20 occupations by full-time/ part-time status in Hawaii: 2012-2016



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Educational attainment

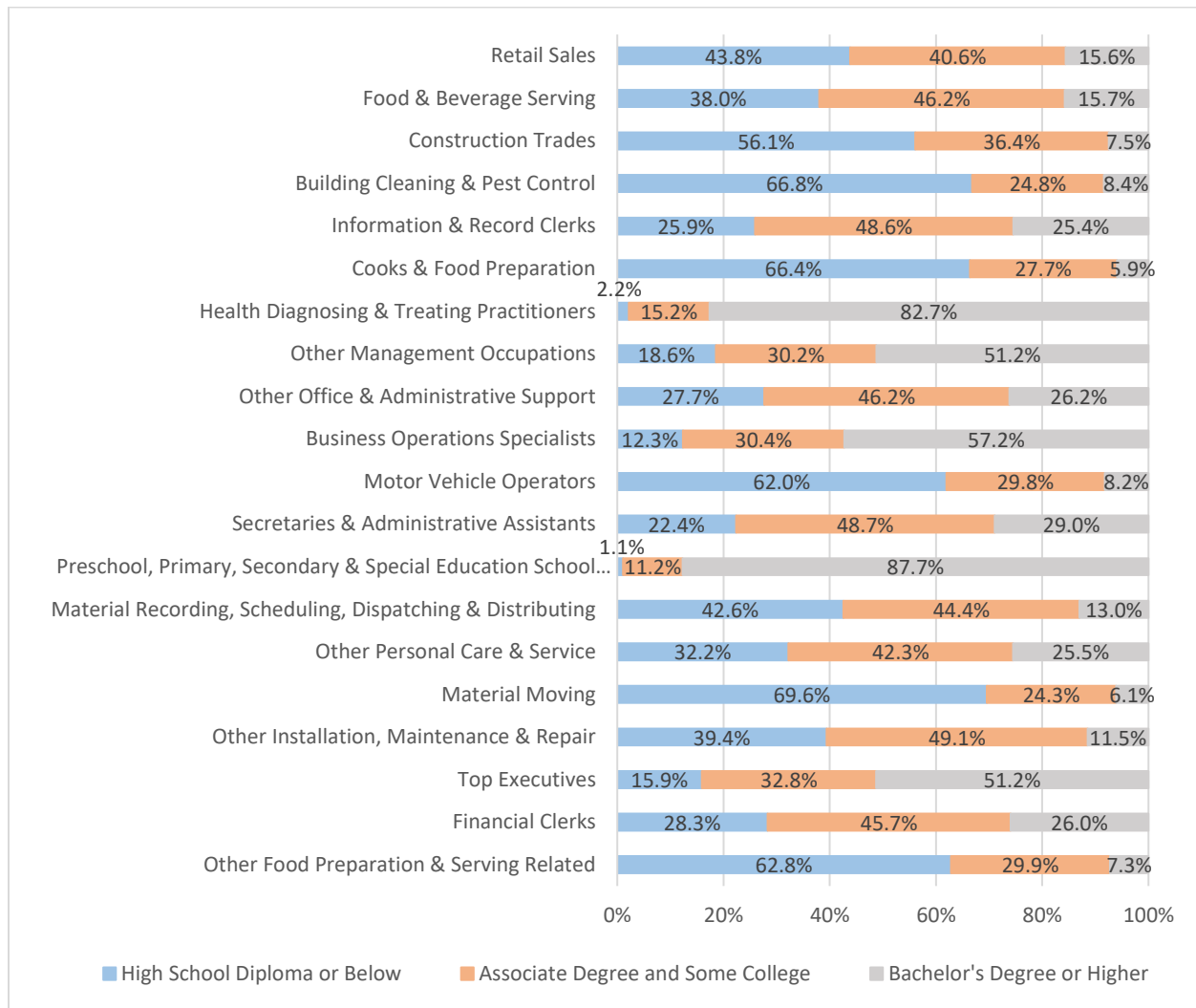
Among the top 20 occupations, 69.6 percent of Material Moving Workers and 66.8 percent of Building Cleaning and Pest Control Workers had high school diploma or below. On the contrary, 87.7 percent of Preschool, Primary, Secondary and Special Education Teachers and 82.7 percent of Health Diagnosing and Treating Practitioners had a bachelor's degree or higher. These were also the two occupation groups which barely had workers with only a high school diploma or below.

Table 6. Top 20 occupations by educational attainment in Hawaii (%): 2012-2016

Occupations	High School Diploma or Below	Associate Degree and Some College	Bachelor's Degree or Higher	Total
Retail Sales	43.8	40.6	15.6	100.0
Food & Beverage Serving	38.0	46.2	15.7	100.0
Construction Trades	56.1	36.4	7.5	100.0
Building Cleaning & Pest Control	66.8	24.8	8.4	100.0
Information & Record Clerks	25.9	48.6	25.4	100.0
Cooks & Food Preparation	66.4	27.7	5.9	100.0
Health Diagnosing & Treating Practitioners	2.2	15.2	82.7	100.0
Other Management Occupations	18.6	30.2	51.2	100.0
Other Office & Administrative Support	27.7	46.2	26.2	100.0
Business Operations Specialists	12.3	30.4	57.2	100.0
Motor Vehicle Operators	62.0	29.8	8.2	100.0
Secretaries & Administrative Assistants	22.4	48.7	29.0	100.0
Preschool, Primary, Secondary & Special Education School Teachers	1.1	11.2	87.7	100.0
Material Recording, Scheduling, Dispatching & Distributing	42.6	44.4	13.0	100.0
Other Personal Care & Service	32.2	42.3	25.5	100.0
Material Moving	69.6	24.3	6.1	100.0
Other Installation, Maintenance & Repair	39.4	49.1	11.5	100.0
Top Executives	15.9	32.8	51.2	100.0
Financial Clerks	28.3	45.7	26.0	100.0
Other Food Preparation & Serving Related	62.8	29.9	7.3	100.0

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Figure 9. Top 20 occupations by educational attainment in Hawaii: 2012-2016



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

STEM Occupations in Hawaii

Science, Technology, Engineering and Mathematics (STEM) occupations have long been considered as driving a state's competitiveness. It is reported that STEM employment grew faster than non-STEM jobs in the nation and is expected to continue growing⁴. This section first looks at Hawaii's top 20 STEM occupations and their industry distributions. Then all STEM occupations are examined as a whole and compared with non-STEM occupations in terms of demographic and economic characteristics.

The Bureau of Labor Statistics has identified 100 STEM occupations out of over seven hundred occupations. The EMSI data contain job and wage information about each of these STEM occupations, except for 11 postsecondary math and science teacher occupations, which are included in a broader category - postsecondary teachers (25-1000). Without a breakdown of postsecondary teachers in the EMSI data, these 11 occupations were excluded from the following top 20 occupation analysis⁵. It should be noted that the total STEM job number in this report is at best a lower bound.

Top 20 largest STEM occupations

In 2016, there were 29,438 STEM occupations in Hawaii, representing 4.1 percent of total employment. The job growth rate of STEM jobs was only slightly higher than non-STEM jobs in Hawaii. Civil Engineers topped the list with 2,227 jobs in 2016, accounting for 0.31 percent of total civilian jobs. Eight computer-related occupations appeared in the top 20 list, making up nearly 31.5 percent of STEM employment. Among the top 20 STEM occupations, Electrical Engineers were the fastest-growing occupations, with an annual growth rate of 2.25 percent over the period of 2001-2016, followed by Biological Technicians, at 2.0 percent. Most of the top 20 STEM jobs were paid less in Hawaii than the nation. The pay discrepancy was even more than 30 percent for Biological Technicians and Computer and Information Systems Managers, with 37 percent and 30 percent pay gap respectively.

Industry distributions of the top 20 largest occupations

Table 8 shows how the top 20 largest STEM occupations were allocated among the 20 industry groups in Hawaii. In general, the Professional, Scientific, and Technical Services and Public Administration were the two sectors which created most of the top 20 STEM jobs. For individual occupations, Sales Representatives for Wholesale and Manufacturing of Technical and Scientific Products were concentrated in the Wholesale Trade sector, as all other computer occupations concentrated in the Public Administration sector.

⁴ STEM Jobs: 2017 Update. The U.S. Department of Commerce Economics and Statistics Administration, 2017.

⁵ Data from BLS' Occupational Employment Statistics program show that there were roughly 1,000 postsecondary teachers in STEM fields in 2016 and the largest group, postsecondary biological science teachers, had 580 jobs. So the exclusion of these STEM postsecondary teachers is unlikely to change the top 20 list.

Table 7. Top 20 STEM occupations in Hawaii: 2016 v.s. 2001

	STEM Occupations	Jobs in 2016	% in Total Civilian Jobs	Jobs in 2001	Average Annual Growth Rate (%)	Median Hourly Earnings (2017)	U.S. Median Hourly Earnings (2017)
1	Civil Engineers (17-2051)	2,227	0.31	1,744	1.64	38.52	39.43
2	Computer User Support Specialists (15-1151)	1,717	0.24	1,553	0.67	21.56	23.77
3	Computer Occupations, All Other (15-1199)	1,657	0.23	1,487	0.72	42.58	40.72
4	Network and Computer Systems Administrators (15-1142)	1,469	0.21	1,323	0.70	35.66	38.15
5	Computer Systems Analysts (15-1121)	1,338	0.19	1,144	1.05	34.85	41.38
6	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products (41-4011)	1,052	0.15	956	0.64	29.46	37.40
7	Software Developers, Applications (15-1132)	997	0.14	959	0.26	37.01	47.66
8	Electrical Engineers (17-2071)	904	0.13	647	2.25	42.36	45.03
9	Architectural and Engineering Managers (11-9041)	867	0.12	675	1.68	55.68	64.61
10	Software Developers, Systems Software (15-1133)	798	0.11	733	0.56	43.33	50.96
11	Engineers, All Other (17-2199)	784	0.11	649	1.27	45.46	44.42
12	Computer and Information Systems Managers (11-3021)	769	0.11	700	0.63	49.79	64.78
13	Architects, Except Landscape and Naval (17-1011)	743	0.10	677	0.62	37.95	33.11
14	Mechanical Engineers (17-2141)	698	0.10	546	1.65	38.48	40.30
15	Computer Programmers (15-1131)	665	0.09	650	0.15	30.99	37.19
16	Environmental Scientists and Specialists, Including Health (19-2041)	663	0.09	559	1.14	30.69	33.32
17	Life, Physical, and Social Science Technicians, All Other (19-4099)	659	0.09	538	1.37	25.42	22.32
18	Computer Network Support Specialists (15-1152)	620	0.09	605	0.17	28.42	30.17
19	Biological Technicians (19-4021)	612	0.09	454	2.00	14.94	20.44
20	Architectural and Civil Drafters (17-3011)	603	0.08	530	0.87	25.62	25.04
	STEM total	29,438	4.1	25,339	1.00		
	Non-STEM total	686,722	95.9	592,412	0.99		

Source: EMSI, calculated by DBEDT.

Table 8. Top 20 STEM occupations by industry at 2-digit NAICS in Hawaii: 2016

Occupations	NAICS11	NAICS21	NAICS22	NAICS23	NAICS31	NAICS42	NAICS44	NAICS48	NAICS51	NAICS52
	Agr.	Mining	Utilities	Cons.	Manuf.	W. Trade	R. Trade	Trans.	Info.	Finance
Civil Engineers	0	0	17	264	<10	<10	0	<10	<10	<10
Computer User Support Specialists	<10	0	11	18	15	61	41	16	112	64
Computer Occupations, All Other	<10	0	<10	<10	<10	17	<10	<10	55	49
Network and Computer Systems Administrators	<10	0	32	19	17	49	16	26	161	106
Computer Systems Analysts	<10	0	22	<10	<10	23	<10	13	60	147
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	10	0	<10	12	21	649	38	<10	34	<10
Software Developers, Applications	<10	0	<10	<10	11	26	<10	<10	90	89
Electrical Engineers	<10	0	252	34	20	20	0	<10	19	0
Architectural and Engineering Managers	0	0	40	43	40	10	0	11	24	<10
Software Developers, Systems Software	<10	0	<10	<10	15	33	<10	<10	85	43
Engineers, All Other	<10	0	15	<10	11	<10	0	10	<10	<10
Computer and Information Systems Managers	<10	0	<10	<10	11	26	<10	14	50	69
Architects, Except Landscape and Naval	0	0	0	27	0	0	0	0	<10	0
Mechanical Engineers	0	0	12	19	56	18	0	<10	<10	<10
Computer Programmers	<10	0	<10	<10	<10	18	<10	<10	33	41
Environmental Scientists and Specialists, Including Health	0	0	21	<10	<10	<10	0	<10	0	0
Life, Physical, and Social Science Technicians, All Other	<10	0	<10	<10	<10	<10	0	0	0	<10
Computer Network Support Specialists	<10	0	<10	<10	<10	19	<10	<10	134	34
Biological Technicians	<10	0	0	0	<10	0	0	0	0	0
Architectural and Civil Drafters	0	0	<10	72	<10	<10	<10	0	0	0

Table 8. Top 20 STEM occupations by industry at 2-digit NAICS in Hawaii: 2016 (Cont.)

Occupations	NAICS53 Real Estate	NAICS54 Prof., Sci. & Tech.	NAICS55 Mgmt .	NAICS56 Admin.	NAICS61 Edu.	NAICS62 Health Care	NAICS71 Arts & Ent.	NAICS72 Accom. & Food Ser.	NAICS81 Other	NAICS90 Pub. Adm.
Civil Engineers	<10	881	20	36	<10	<10	0	<10	<10	985
Computer User Support Specialists	16	385	78	151	137	72	<10	10	44	472
Computer Occupations, All Other	<10	202	46	61	13	22	<10	<10	27	1,114
Network and Computer Systems Administrators	16	352	114	113	53	78	11	12	57	237
Computer Systems Analysts	<10	473	127	100	14	52	<10	<10	15	260
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	11	193	46	18	<10	<10	0	0	<10	<10
Software Developers, Applications	10	494	61	66	11	21	<10	0	16	70
Electrical Engineers	0	302	51	35	<10	0	<10	0	<10	164
Architectural and Engineering Managers	<10	317	65	20	<10	<10	0	<10	<10	287
Software Developers, Systems Software	<10	419	54	68	<10	<10	0	0	<10	38
Engineers, All Other	<10	136	22	30	<10	<10	<10	<10	<10	522
Computer and Information Systems Managers	<10	221	82	46	17	27	<10	<10	25	137
Architects, Except Landscape and Naval	<10	638	<10	<10	<10	0	0	0	0	60
Mechanical Engineers	<10	257	33	52	<10	<10	0	<10	<10	235
Computer Programmers	<10	331	32	58	<10	10	<10	<10	13	80
Environmental Scientists and Specialists, Including Health	0	110	<10	<10	<10	<10	<10	0	19	478
Life, Physical, and Social Science Technicians, All Other	0	69	<10	45	26	36	<10	0	<10	452
Computer Network Support Specialists	<10	124	34	38	27	20	<10	<10	14	139
Biological Technicians	0	114	<10	11	28	40	<10	0	0	410
Architectural and Civil Drafters	<10	470	<10	15	0	0	0	0	0	25

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

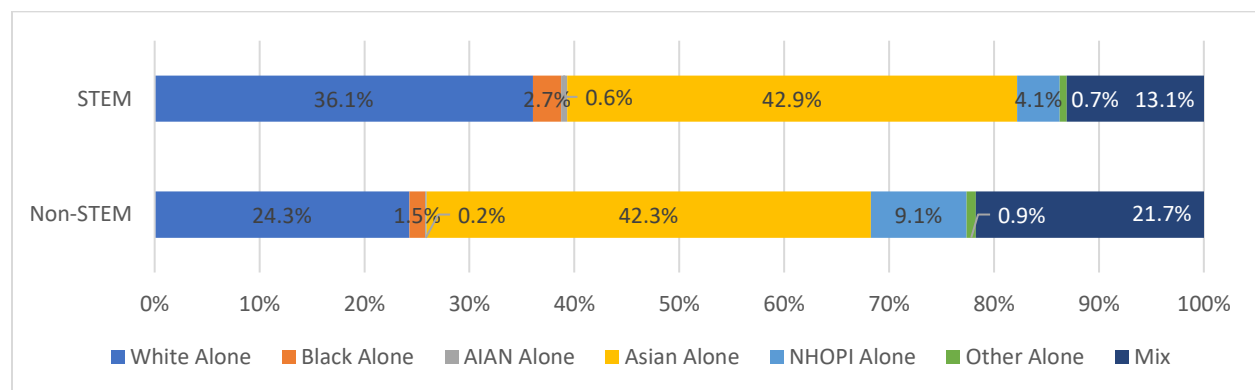
Demographic and economic characteristics of all STEM occupations

Based on the ACS 5-year PUMS data, the demographic and economic characteristics of STEM occupations can be compared with non-STEM occupations. PUMS data, however, combine some of the STEM occupations with non-STEM occupations. So these combined STEM occupations were included in the non-STEM group. According to the EMSI data, about 2,144 STEM jobs were categorized this way, accounting for about 7.3 percent of total STEM jobs.

Race

Over the period of 2012-2016, the largest race group in the STEM occupations was Asian, representing 42.9 percent of all STEM jobs. This ratio is more or less similar as in the non-STEM jobs. Whites made up 36.1 percent of STEM jobs, 11.8 percentage point higher than the rate in non-STEM jobs. Native Hawaiian and other Pacific Islander tend to work in non-STEM occupations, at the rate of 9.1 percent of all non-STEM jobs and 4.1 percent of STEM jobs.

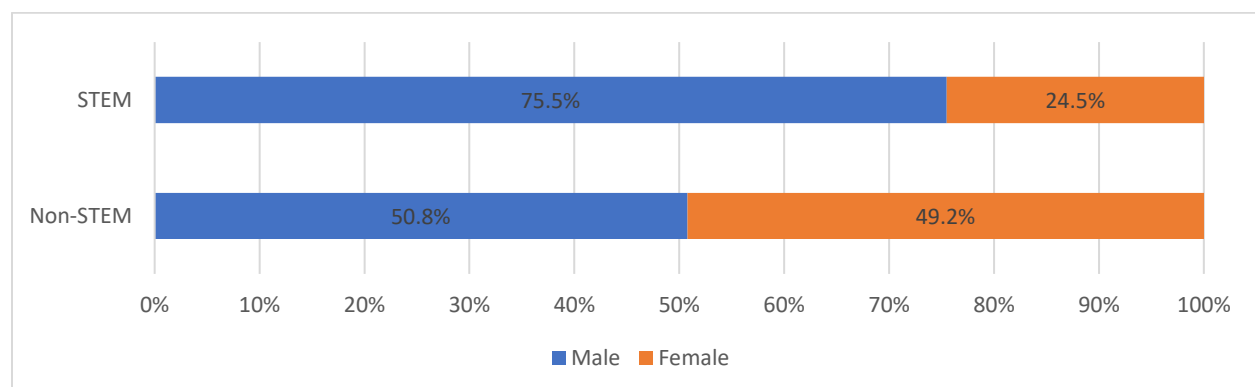
Figure 10. STEM occupation by race in Hawaii: 2012-2016



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Gender

Figure 11. STEM occupation by gender in Hawaii: 2012-2016



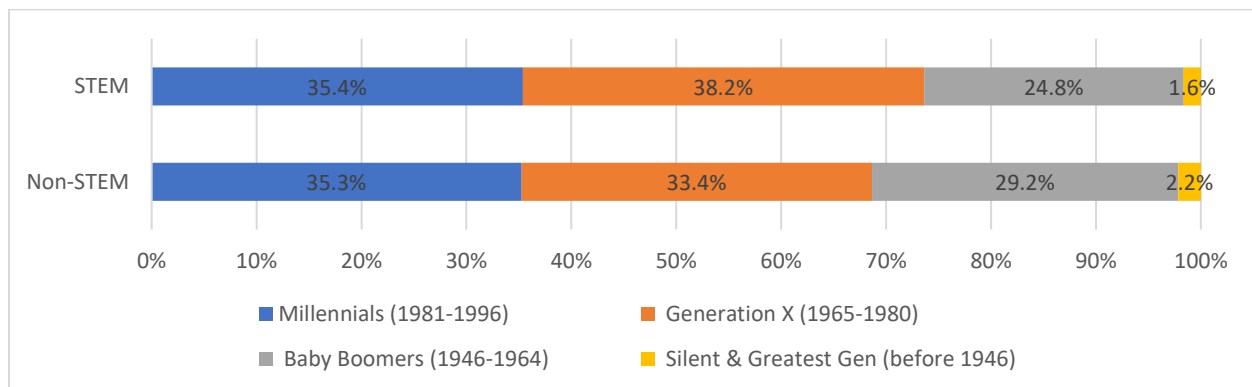
Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Three-fourths of STEM occupations were male workers, though the ratio was 50-50 among the non-STEM occupations.

Age

STEM jobs tend to be younger, with 73.6 percent born after 1964, compared with 68.7 percent in non-STEM jobs. The Generation X made up 38.2 percent of STEM jobs, 4.8 percentage point higher than in non-STEM jobs.

Figure 12. STEM occupation by age group in Hawaii: 2012-2016

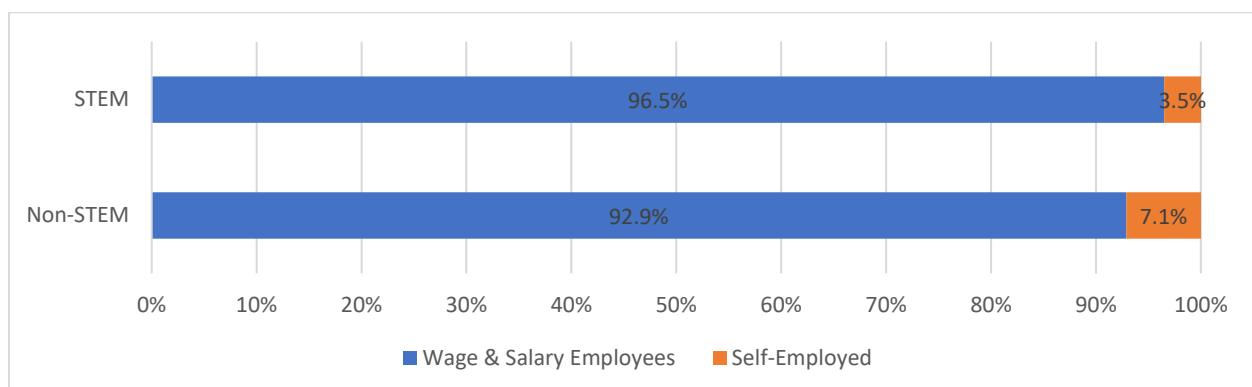


Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Class of workers

Workers in the STEM field were more likely to be wage and salary employees. 96.5 percent of STEM workers were wage and salary employees, compared with 92.9 percent of non-STEM workers.

Figure 13. STEM occupation by class of work in Hawaii: 2012-2016

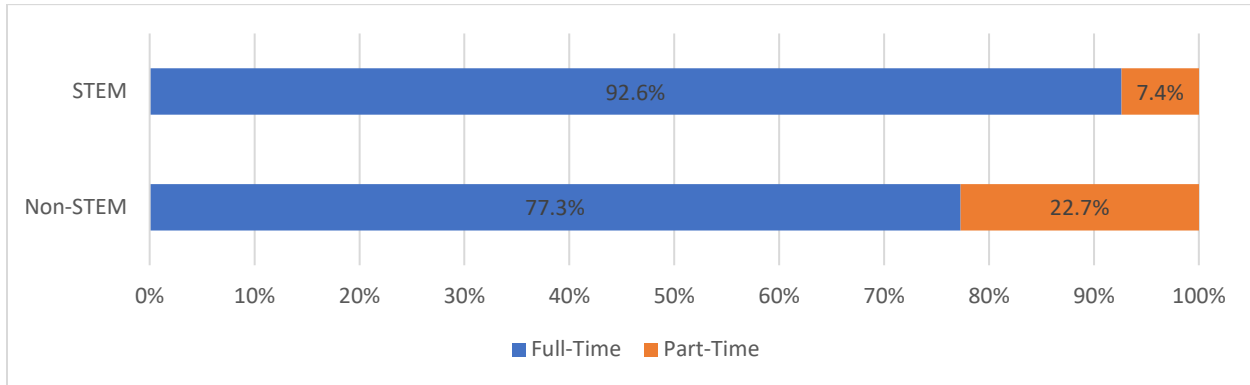


Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Full-time/Part-time

STEM jobs tend to be full-time, with 92.6 percent of STEM jobs being full-time. By contrast, 77.3 percent of non-STEM jobs were full-time.

Figure 14. STEM occupation by full-time/part-time status in Hawaii: 2012-2016

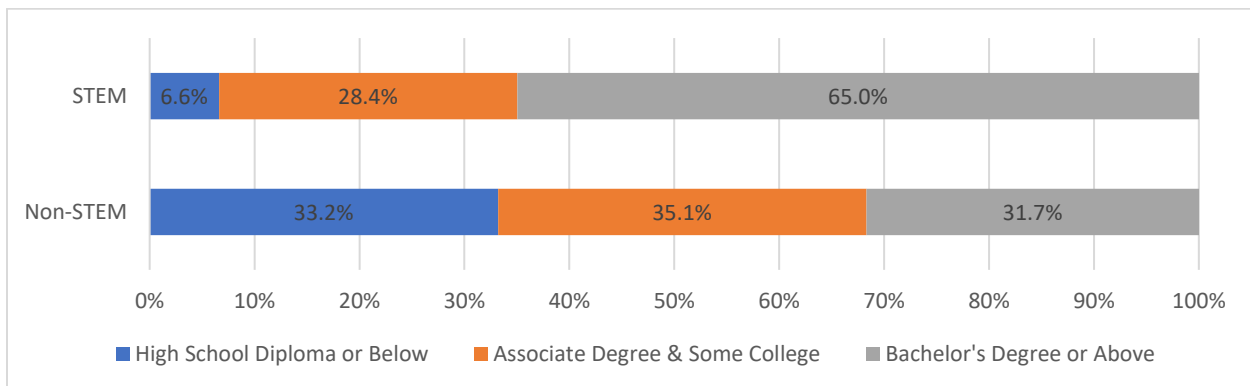


Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Educational attainment

Not surprisingly, the majority of STEM jobs had a bachelor's degree or above. The ratio of bachelor's degree or higher degree holders in the STEM jobs was more than double the ratio in the non-STEM jobs. Only 6.6 percent of STEM jobs had a high school diploma or below, compared with one-third of non-STEM jobs.

Figure 15. STEM occupation by educational attainment in Hawaii: 2012-2016



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Appendix

Table A- 1. List of NAICS codes and industries

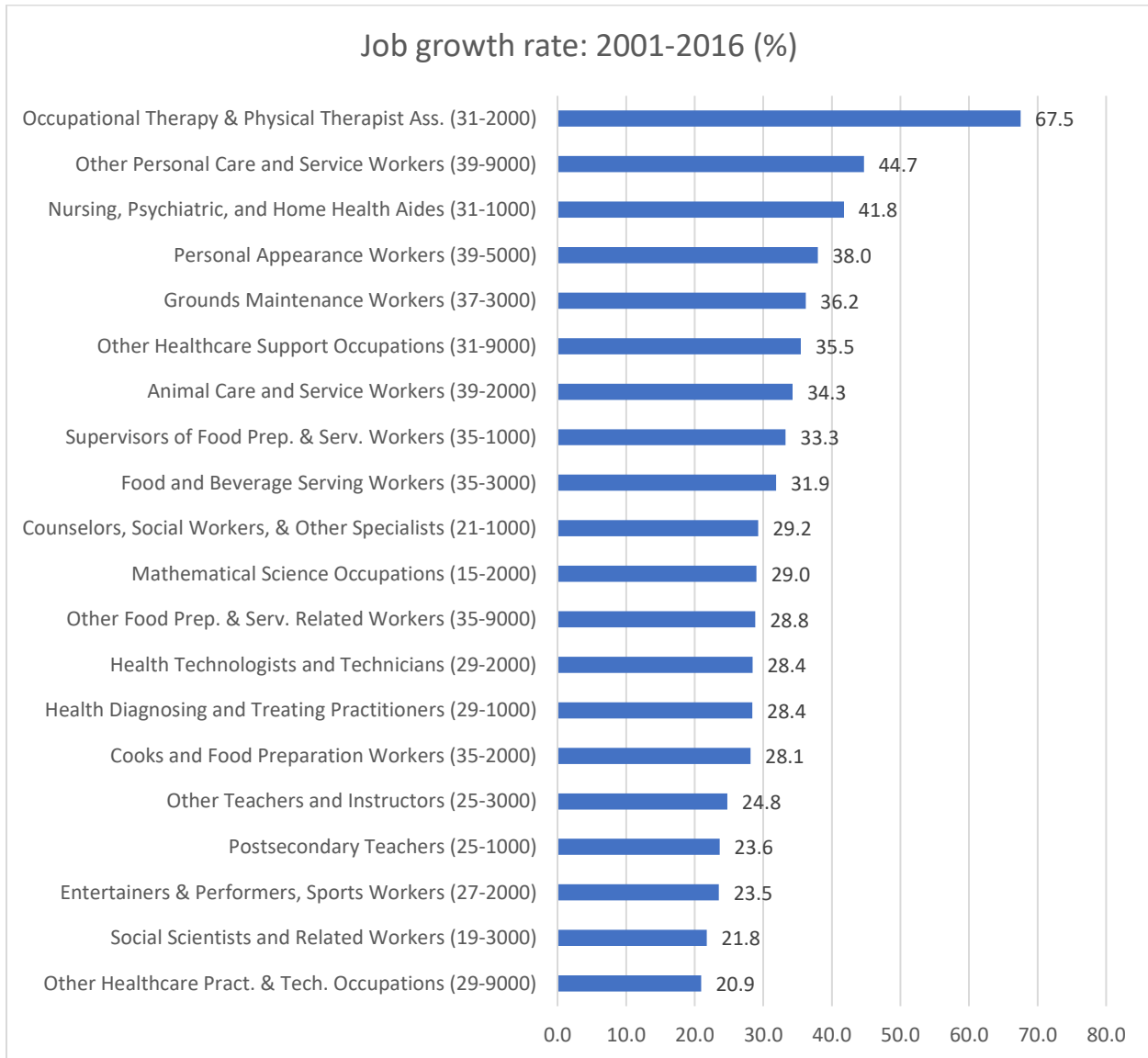
NAICS11	Agriculture, Forestry, Fishing and Hunting
NAICS21	Mining, Quarrying, and Oil and Gas Extraction
NAICS22	Utilities
NAICS23	Construction
NAICS31	Manufacturing
NAICS42	Wholesale Trade
NAICS44	Retail Trade
NAICS48	Transportation and Warehousing
NAICS51	Information
NAICS52	Finance and Insurance
NAICS53	Real Estate and Rental and Leasing
NAICS54	Professional, Scientific, and Technical Services
NAICS55	Management of Companies and Enterprises
	Administrative and Support and Waste Management and Remediation
NAICS56	Services
NAICS61	Educational Services
NAICS62	Health Care and Social Assistance
NAICS71	Arts, Entertainment, and Recreation
NAICS72	Accommodation and Food Services
NAICS81	Other Services (except Public Administration)
NAICS90	Public Administration

Table A- 2. Top 20 largest occupations in the United States, 2016 v.s. 2001

Occupations	2016		2001		Job growth in the U.S.: 2001-2016		
	Jobs	% of Total	Jobs	% of Total	Added jobs	15-year Growth rate (%)	Ave. ann. Growth rate (%)
1 Retail Sales Workers (41-2000)	8,908,822	5.7	8,595,323	6.0	313,499	3.6	0.2
2 Food and Beverage Serving Workers (35-3000)	7,441,359	4.8	5,643,026	4.0	1,798,332	31.9	1.9
3 Information and Record Clerks (43-4000)	5,896,741	3.8	5,389,874	3.8	506,866	9.4	0.6
4 Construction Trades Workers (47-2000)	5,552,934	3.5	5,577,865	3.9	-24,931	-0.4	0.0
5 Health Diagnosing and Treating Practitioners (29-1000)	5,432,455	3.5	4,230,293	3.0	1,202,162	28.4	1.7
6 Business Operations Specialists (13-1000)	5,066,263	3.2	4,509,907	3.2	556,356	12.3	0.8
7 Material Moving Workers (53-7000)	4,729,661	3.0	4,463,919	3.1	265,742	6.0	0.4
8 Other Office and Administrative Support Workers (43-9000)	4,487,324	2.9	4,189,269	2.9	298,055	7.1	0.5
9 Motor Vehicle Operators (53-3000)	4,381,953	2.8	3,956,202	2.8	425,751	10.8	0.7
10 Computer Occupations (15-1100)	4,266,556	2.7	3,713,550	2.6	553,007	14.9	0.9
11 Preschool, Primary, Secondary, and Special Education School Teachers (25-2000)	4,233,010	2.7	3,839,665	2.7	393,345	10.2	0.7
12 Secretaries and Administrative Assistants (43-6000)	4,195,920	2.7	3,809,201	2.7	386,719	10.2	0.6
13 Other Personal Care and Service Workers (39-9000)	4,167,639	2.7	2,880,386	2.0	1,287,253	44.7	2.5
14 Material Recording, Scheduling, Dispatching, and Distributing Workers (43-5000)	4,163,579	2.7	4,247,234	3.0	-83,655	-2.0	-0.1
15 Building Cleaning and Pest Control Workers (37-2000)	4,154,185	2.7	3,571,974	2.5	582,211	16.3	1.0
16 Other Management Occupations (11-9000)	3,537,484	2.3	3,267,832	2.3	269,652	8.3	0.5
17 Financial Clerks (43-3000)	3,389,310	2.2	3,354,155	2.3	35,155	1.0	0.1
18 Cooks and Food Preparation Workers (35-2000)	3,301,638	2.1	2,576,637	1.8	725,000	28.1	1.7
19 Other Installation, Maintenance, and Repair Occupations (49-9000)	3,130,222	2.0	3,002,961	2.1	127,261	4.2	0.3
20 Health Technologists and Technicians (29-2000)	3,096,854	2.0	2,411,169	1.7	685,685	28.4	1.7
Total Civilian Jobs	156,602,117		142,754,154		13,847,963	9.7	0.6

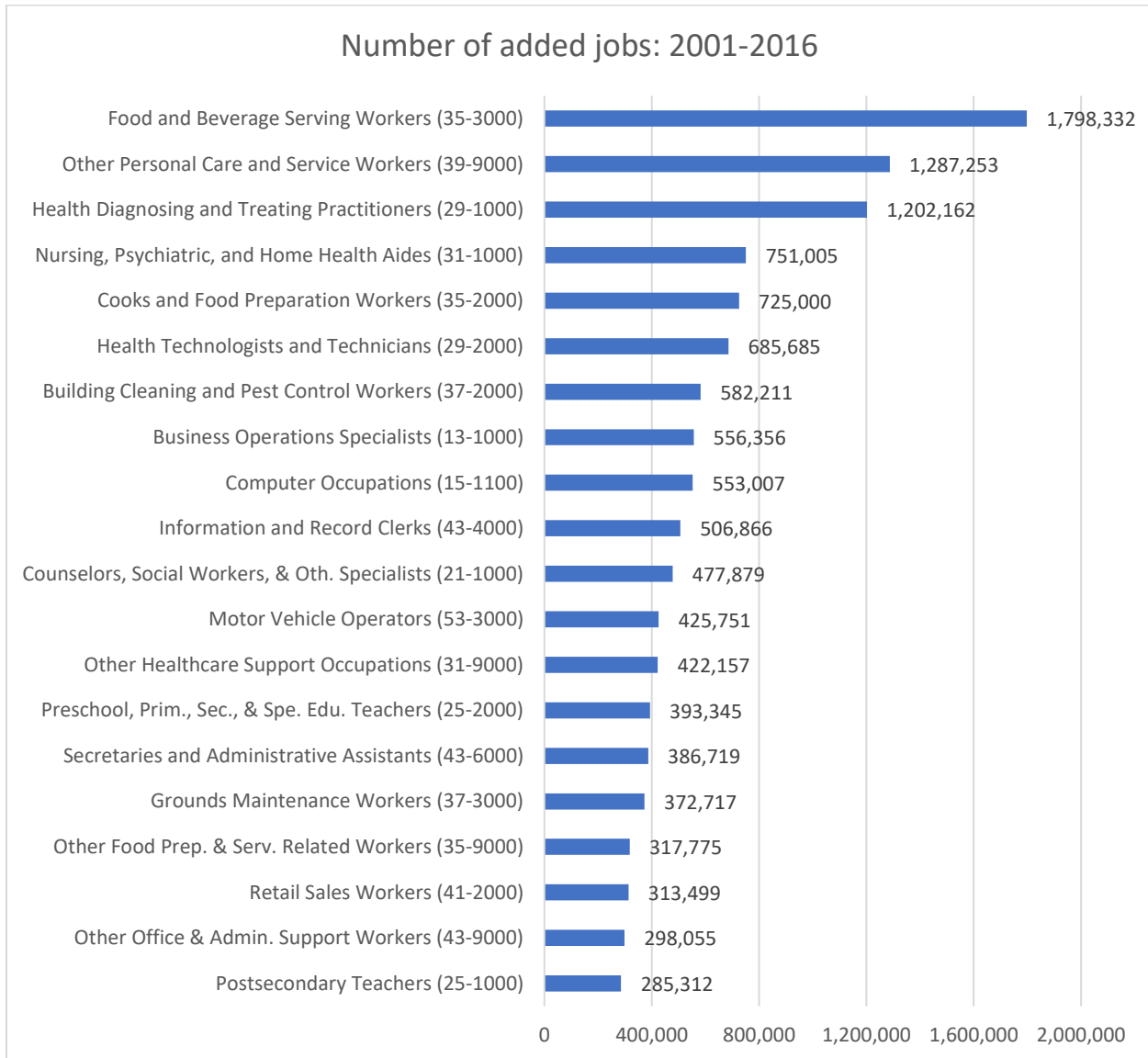
Source: EMSI.

Figure A- 1. Top 20 fastest-growing occupations in the United States: 2001-2016



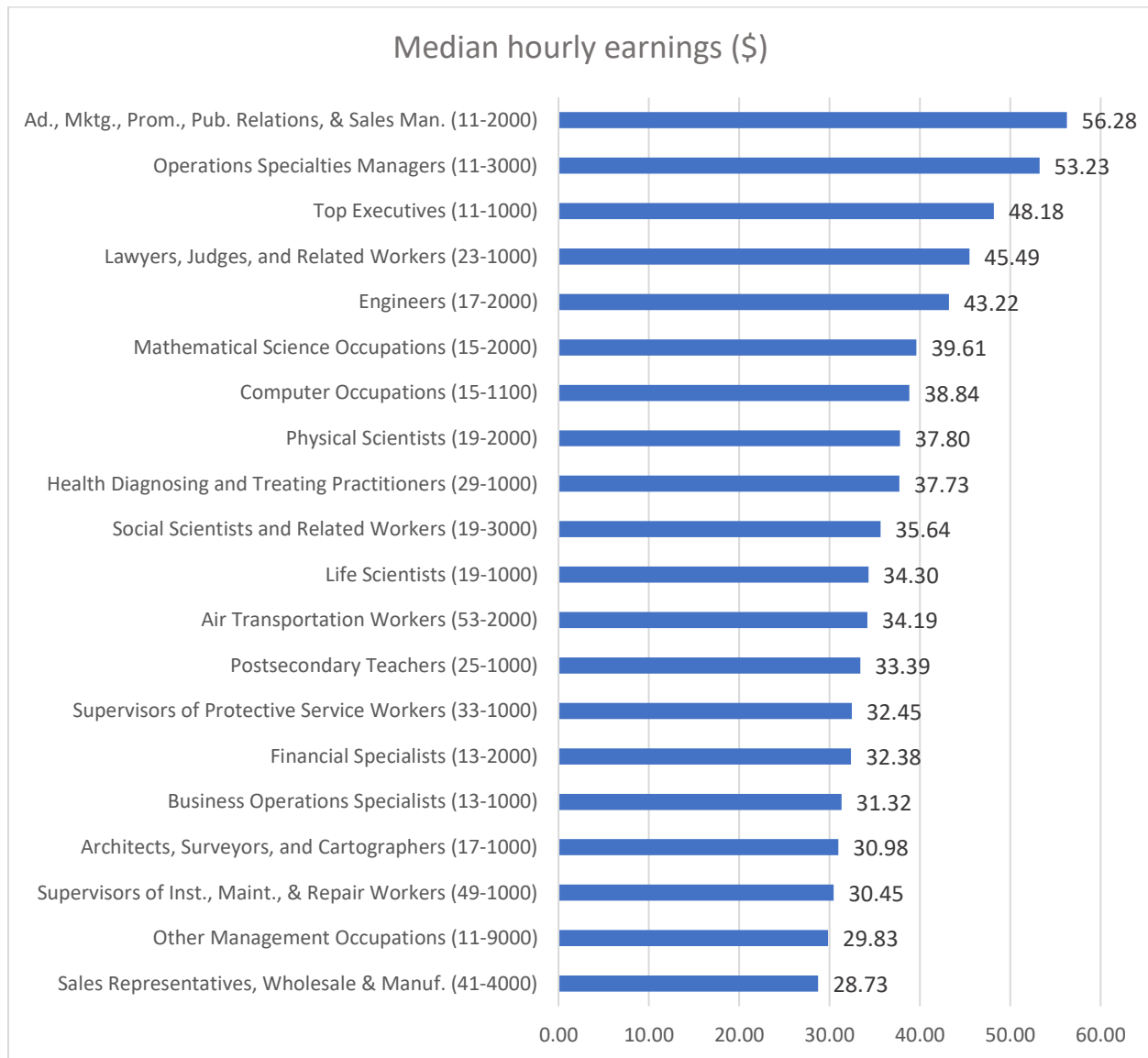
Source: EMSI, calculated by DBEDT.

Figure A- 2. Top 20 largest-growing occupations in the United States: 2001-2016



Source: EMSI, calculated by DBEDT.

Figure A- 3. Top 20 highest-paying occupations in the United States: 2016



Source: EMSI, calculated by DBEDT.

Table A- 3. Top 20 occupations by industry at 2-digit NAICS in the United States: 2016

Occupations	NAICS11	NAICS21	NAICS22	NAICS23	NAICS31	NAICS42	NAICS44	NAICS48	NAICS51	NAICS52
	Agr.	Mining	Utilities	Cons.	Manuf.	W. Trade	R. Trade	Trans.	Info.	Finance
Total	1,933,589	627,612	558,866	8,602,498	12,523,481	5,997,207	16,453,715	5,461,941	2,957,760	6,151,712
Retail Sales Workers	4,624	102	1,400	8,247	64,534	153,284	7,438,486	11,600	35,988	29,192
Food and Beverage Serving Workers	469	88	0	405	31,071	2,433	269,789	2,658	43,244	76
Construction Trades Workers	8,123	44,402	22,155	4,735,589	172,588	18,182	36,457	15,651	9,485	257
Building Cleaning and Pest	10,918	1,104	1,153	21,203	62,959	19,563	114,826	17,371	7,244	10,430
Information and Record Clerks	6,773	3,683	30,985	44,970	206,298	304,613	514,316	211,901	193,181	896,493
Cooks and Food Preparation Workers	2,128	335	0	164	16,446	3,562	244,247	4,070	2,751	286
Health Diagnosing and Treating Practitioners	599	60	55	56	3,211	12,001	204,789	558	661	32,342
Other Management Occupations	482,771	11,145	11,603	490,089	152,756	24,239	16,742	28,395	32,003	45,594
Other Office and Administrative Support Workers	13,237	14,880	12,010	226,742	173,412	209,024	217,396	107,369	113,030	448,791
Business Operations Specialists	6,926	18,455	34,223	203,256	372,266	231,837	134,450	72,986	173,097	527,936
Motor Vehicle Operators	47,729	33,429	1,995	123,481	204,287	507,736	343,078	1,975,494	15,137	1,076
Secretaries and Administrative Assistants	16,166	12,984	12,391	193,382	131,213	131,763	97,573	53,460	48,792	211,594
Preschool, Primary, Secondary, and Special Education School Teachers	0	0	0	37	0	0	253	<10	83	0
Material Recording, Scheduling, Dispatching, and Distributing Workers	11,402	9,142	22,254	46,380	408,260	430,813	1,564,327	402,753	40,401	14,331
Other Personal Care and Service Workers	1,633	0	0	437	120	<10	2,972	2,841	276	1,112
Material Moving Workers	55,718	49,999	6,099	104,778	728,518	599,725	629,421	1,052,797	29,882	952
Other Installation, Maintenance, and Repair Occupations	18,407	32,096	103,976	497,263	485,353	161,132	140,834	72,650	66,661	8,381
Top Executives	12,263	17,110	13,915	175,152	245,912	208,414	282,884	72,455	68,590	145,054
Financial Clerks	17,765	10,474	11,163	145,391	148,182	177,027	217,789	68,021	47,122	712,851
Other Food Preparation and Serving Related Workers	40	0	34	180	4,668	363	14,136	828	1,422	44

Table A-3. Top 20 occupations by industry at 2-digit NAICS in the United States: 2016 (cont.)

Occupations	NAICS53	NAICS54	NAICS55	NAICS56	NAICS61	NAICS62	NAICS71	NAICS72	NAICS81	NAICS90
	Real Estate	Prof., Sci. & Tech.	Mgmt .	Admin.	Edu.	Health Care	Arts & Ent.	Accom. & Food Ser.	Other	Pub. Adm.
Total	2,631,922	10,118,962	2,230,131	9,894,292	4,070,168	19,902,749	2,699,664	13,533,975	7,604,567	22,375,406
Retail Sales Workers	241,266	12,312	10,749	74,770	13,760	34,526	136,065	390,715	145,215	82,397
Food and Beverage Serving Workers	9,970	4,905	2,962	48,585	29,207	212,052	201,522	6,249,899	72,697	242,851
Construction Trades Workers	23,092	24,823	5,851	148,444	10,011	12,448	9,680	4,107	12,959	229,726
Building Cleaning and Pest	113,268	20,930	8,037	1,410,021	128,672	380,233	72,359	553,214	587,687	606,919
Information and Record Clerks	92,646	376,792	154,252	655,314	152,404	773,097	81,513	278,757	196,596	711,304
Cooks and Food Preparation Workers	4,298	1,254	2,134	20,860	26,796	231,920	64,152	2,403,374	42,564	223,488
Health Diagnosing and Treating Practitioners	3,182	94,179	18,979	79,367	39,194	4,116,763	1,771	4,112	16,708	793,991
Other Management Occupations	237,145	230,146	84,719	62,465	156,947	448,965	34,278	292,052	96,624	594,697
Other Office and Administrative Support Workers	124,879	369,801	80,326	430,875	236,140	422,885	37,249	44,511	219,712	977,725
Business Operations Specialists	50,376	947,137	302,757	308,065	113,232	253,646	62,937	38,947	260,285	945,054
Motor Vehicle Operators	68,521	19,541	19,117	150,610	18,430	108,016	8,449	242,555	67,944	417,066
Secretaries and Administrative Assistants	127,816	518,810	90,134	229,566	287,935	819,550	35,742	25,400	308,977	836,045
Preschool, Primary, Secondary, and Special Education School	0	509	1,784	4,102	549,234	328,858	2,411	40	127,172	3,216,969
Material Recording, Scheduling, Dispatching, and Distributing Workers	14,508	82,017	41,881	195,362	18,644	96,433	7,560	17,926	26,380	705,546
Other Personal Care and Service Workers	10,033	2,640	7,983	55,377	94,760	2,657,560	309,309	21,814	644,147	347,736
Material Moving Workers	57,510	49,047	22,396	920,287	4,949	32,319	33,268	13,543	208,388	120,114
Other Installation, Maintenance, and Repair Occupations	319,765	43,752	26,778	151,692	56,245	118,145	57,182	107,505	255,905	400,938
Top Executives	66,551	281,739	101,892	155,382	43,994	144,636	53,928	107,878	142,901	240,168
Financial Clerks	80,010	369,632	148,377	274,047	71,988	376,984	30,379	57,581	130,953	286,907
Other Food Preparation and Serving Related Workers	2,477	306	1,041	15,319	10,043	39,691	48,990	1,231,437	14,015	31,206

Source: EMSI.